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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,524	11/13/2003	Sung-Mao Wu	250123-1010	8663

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EXAMINER

LEE, BENNY T

ART UNIT PAPER NUMBER

2817

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.



FILING DATE:

## BEST AVAILABLE COPY

☒ This application has been examined ☐ Responsive to communication filed on \_\_\_\_\_ ☐ This action is made final.

A shortened statutory period for response to this action is set to expire Three (3) month(s), ~~four~~ from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

## Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- |   |   |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input type="checkbox"/> Notice re Patent Drawing, PTO-948.                  |
| 3. <input checked="" type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449.      | 4. <input type="checkbox"/> Notice of Informal Patent Application, Form PTO-152 |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474.     | 6. <input type="checkbox"/> _____   |

## Part II SUMMARY OF ACTION

1. ☒ Claims 1-7, renumbered 8-16 (renumbered) are pending in the application.  
Of the above, claims \_\_\_\_\_ are withdrawn from consideration.
2. ☐ Claims \_\_\_\_\_ have been cancelled.
3. ☐ Claims \_\_\_\_\_ are allowed.
4. ☒ Claims 1, 2, 4, 6, 7, 8, 9, 10, 12, 14 (renumbered) are rejected.
5. ☒ Claims 3, 5, 11, 13, 15, 16 (renumbered) are objected to.
6. ☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on \_\_\_\_\_ Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on \_\_\_\_\_ has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed \_\_\_\_\_, has been ☐ approved; ☐ disapproved (see explanation).
12. ☐ Acknowledgement is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. \_\_\_\_\_; filed on \_\_\_\_\_.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

The disclosure is objected to because of the following informalities: Page 2, line 2 and page 5, lines 12, 13, note that "of which", should be rephrased as note --that-- for clarity of description. Page 2, line 4, note that a --; -- should follow "er" (first occurrence) and "ofer" should be properly separated; line 5, note that "say 4 for instance" should be rephrased as --for instance 4-- for clarity of description. Page 4, lines 1, 12, note that "so will" should be deleted as being unnecessary; line 4, note that --which-- should precede "comprises" for clarity of description. Page 4, lines 2, 12 and page 7, lines 2, 3, note that -- will -- should precede each occurrence of "be" for clarity of description. Page 6, line 1, note that "will be" should be deleted as being unnecessary; line 12, similarly note that "the" should be deleted as being unnecessary. Appropriate correction is required.

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 9-17 been renumbered 8-16. The following claims have been found objectionable for reasons set forth below:

In clam 1, lines 5, 7, note that -- the dielectric constant -- should replace "that" at each instance for clarity of description.

In claims 5, 6, 7; renumbered claims 13, 14, 15, 16, note that "is...." appears to be of inconsistent tense.

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In claims 7; 15, (renumbered) note that each claims recites the same subject matter and has the same claim dependency, thereby rendering one of these claims as being redundant. Should the dependency of claim "16" be amended to properly depend from claim --10 --?

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4, 6; renumbered claims 8, 9, 10, 12, 14 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Suzuki.

Suzuki (fig.1) discloses a metal ground plane layer (2) upon which is disposed a dense (i.e. solid) dielectric layer comprised of a polytetrafluoroethylene resin material (5) having openings or voids (4) disposed therein. Note that the resultant composite dielectric layer functions to minimize the dielectric constant or permittivity so as to be close to that of air (i.e. by virtue of the openings in the resin material which inherently fills with air). See col. 2, ls 55-57. Finally, a signal conductor (1) is disposed on the dielectric layer.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2, 7, renumbered claims 8, 9, 10, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsubayashi et al.

Matsubayashi et al (fig. 3) discloses a microstrip transmission line structure comprising: a metal ground plane layer (2); a dense (i.e. solid) dielectric layer (1) of polyimide material; and a signal conductor (3) disposed thereon. Matsubayashi et al differs from the claimed invention that the dense dielectric layer lacks voids of air disposed therein.

However, Matsubayashi et al does disclose alternative embodiments of the invention. For example, in embodiment 3 (i.e. fig. 5), instead of polyimide material (1), an alternative foamed material (9), such as polyethylene (see col. 5, ls. 7, 8), would have been usable to reduce the dielectric constant of the material (see col. 5, ls. 7, 8). Alternatively, in embodiment 5, instead of the foamed material, the polyimide material is mixed with minute hollow spheres to also provide for effective reduction in dielectric constant.

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Accordingly, in view of the teachings and suggestions of Matsubayashi et al, it would have been obvious to have modified the polyimide material (1) in the fig. 3 microstrip to have included hollow microspheres therein as suggested in embodiment 5. Such modification would have provided the advantageous benefit of a reduction in the overall dielectric constant of the polyimide material, thereby suggesting the obviousness of the modification. Note that since the microspheres are hollow then it would have been obvious that air would be trapped therein. Moreover, note that an alternative modification would have used foamed material (9) in place of polyimide material (1) for the Fig. 3 microstrip. Likewise such a modification provides the obvious desirable benefit of a reduction in dielectric constant. It should be noted that foamed dielectric material intrinsically include voids therein in which air would have been obviously trapped.

Any inquiry concerning this communication should be directed to Benny Lee at telephone number (571) 272-1764.

Lee/ds

12/22/04



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PRIMARY EXAMINER  
ART UNIT 2817